

178 *Thalictrum Canadense*, caule purpurascente,
aquilegiae foliis, florum staminibus albis I.R.H. 271.
Canadense Corn. 186.

Il croît sur les bords des rivières, dans les prairies.

Cornut having written in 1635, this point needs no further discussion. Indeed, Dr. Sarrazin lived from 1659 to 1734.

Greene also suggested that, Cornut's plant having been described from cultivated material, it might be possible to find it in European botanical gardens. Well, what Linnaeus, Tournefort and Vaillant had and called *T. canadense* Corn. was *T. aquilegifolium* L., but Bernard de Jussieu had in his herbarium both *T. aquilegifolium* L. and *T. polygamum* Muhl. labelled *T. canadense* Corn.

T. canadense Miller. The intention of Miller was certainly not to describe a new species, for he calls it *T. canadense* Cornut. Only through the rules of nomenclature is this name attributed to Miller.

Thalictrum confertum Moench. Described from plants cultivated in a botanical garden, no type being known to exist. Moench gives *T. Cornuti* L. as a synonym and his description agrees perfectly well with *T. aquilegifolium* L. in bloom.

Thus it seems probable that, through exchanges between botanical gardens, the stock of seeds which furnished *T. Cornuti* L. also furnished *T. canadense* Miller and *T. confertum* Moench. At any rate, it seems to be the only sensible explanation.

In his herbarium, now at the Smithsonian Institution, Mohr had a small fragment of *T. aquilegifolium* L. purportedly collected by Prof. Riddell in 1839 in Ohio and it was identified as *Thalictrum dioicum* L., var. *stipitatum* T. & Gr. Undoubtedly it was from cultivated plants.

(To be continued)

THE IDENTITIES OF *EPILOBIUM LINEARE*, *E. DENSUM* AND *E. CILIATUM*

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The names, *Epilobium lineare* Muhl., *E. strictum* Muhl., *E. densum* Raf. and *E. molle* Torrey, are so familiar and have been so generally used (ordinarily *E. lineare* and *E. densum* united as

one, *E. strictum* and *E. molle* as a second species) that it comes as a shock to find how easily they have been taken up, but how little attention has been paid to their actual applications and to the original descriptions. In eastern North America we have 5 species definitely belonging in Haussknecht's Series *Palustriformes*, and a 6th which he places there but which is surely atypical of that alliance. In order that the following analysis may be less obscure these species may be briefly defined as follows:

- a. Stem, leaves and capsule grayish-velvety with short horizontally divergent pubescence; stem bearing numerous axillary fascicles of leaves; leaves oblong-lanceolate to linear, obtuse to subacute, not attenuate at tip; petals pink, 7-9 mm. long; Gaspé Peninsula, Quebec, to Minnesota, south to Nova Scotia, New England, northern Virginia, northern Ohio, central Indiana and northern Illinois.
 1. *E. strictum* Muhl. (1813),
E. densum Raf. (1814), *E. molle* Torr. (1824) not Lam. (1778).
- a. Stem, leaves and capsule glabrous to minutely incurved-pubescent. . . . b.
- b. Median and upper cauline leaves linear to lanceolate, the larger ones of each plant 1-10 cm. long; calyx-segments tapering to acute or subacute tips; seed with short and thick to barely evident neck. . . . c.
- c. Leaves closely and evenly pubescent (seen under magnification) above with minute incurved hairs, tapering or attenuate to tip; tips of stem or branches and buds before flowering arching or ascending, not strongly nodding. . . . d.
- d. Stem freely upright-branching to simple, arising from a fibrous-rooting usually nonstoloniferous base; calyx 3-4.5 mm. high; petals 4-6.5 mm. long; seeds tapering to evident collar or neck; Gaspé Peninsula, Quebec, to Alberta, south to Nova Scotia, New England, Delaware, Maryland, West Virginia, Ohio, Indiana, Illinois, Missouri, Kansas and Colorado.
 2. *E. rosmarinifolium* Pursh (1814) not Haenke (1788), *E. leptophyllum* Raf. (1814), *E. tenellum* Raf. (1814), *E. lineare*, sensu Barton (1818) as to plant described, not Muhl. (1813 as based nomenclaturally on *E. oliganthum* Michx.), *E. squamatum* Nutt. (1818).
- d. Stem simple (except for axillary fascicles) or with few erect branches, arising from decumbent prolonged and rooting simple base or from loosened scaly bulbs, propagating by elongate filiform stolons with terminal bulbs; calyx 4.5-7 mm. high; petals 7.5-10 mm. long; seeds essentially without collar; Newfoundland, Anticosti, Magdalen Islands and Sable Island
 3. *E. nesophilum* Fernald (1925).
- c. Leaves glabrous above or with few remote hairs; tips of stems and pedicels before flowering nodding. . . . e.
- e. Flowering stems arising from tips of slender stolons of the preceding year or from loosened scaly bulbs, late in the season sending out filiform stolons; uppermost internodes and capsules, if pubescent, uni-

formly so; margins of leaves entire or very shallowly undulate, revolute, the leaf-tips acute to obtuse; calyx sparsely pubescent; circumpolar boreal species, the var. *oliganthum* Haussk. with thick strongly appressed-ascending obtuse linear leaves coming south to Newfoundland, Nova Scotia, eastern Massachusetts, Rhode Island, central New York, etc., . . . 4. *E. palustre* L.; var. *oliganthum*, *E. oliganthum* Michx. (1803) "ad sinum Hudsonis et lacus Mistassins." *E. linear* Muhl. (1813), the name at least an illegitimate substitute for *E. oliganthum* Michx.

- e. Flowering stems arising from basal rosettes of round-tipped leaves, without stolons; internodes and capsule glabrous except for restricted lines of hair; leaves round-tipped, with flat ciliate denticulate margins; calyx glabrous; circumpolar, coming south with us to northern Newfoundland, Anticosti and shores of James Bay 5. *E. davuricum* Fisch. (1819).
- b. Median and upper cauline leaves elliptic-oblong, obtuse or round-tipped, 0.8–2 cm. long; calyx-segments oblong, broadly rounded at tip; seed with long slender neck; endemic in Newfoundland 6. *E. Pylaieanum* Fernald (1925).

In the study of the relatively southern species of Muhlenberg, Rafinesque and Torrey species nos. 3, 5 and 6 of the preceding key may safely be omitted. The earliest published name in the remaining series was *E. oliganthum* Michx. Fl. Bor.-Am. i. 223 (1803).

OLIGANTHUM. *E. pusillum*: caulibus simplicissimis, apice subunifloris: foliis oppositis, linearibus, integerrimis.

Obs. Idem in Pyraeneis lectum vidi.

Hab. ad sinum Hudsonis et lacus Mistassins.

The type, studied by me in 1903 and of which a very clear photograph is before me, was originally called *E. palustre*, that name then crossed out and *oliganthum* substituted. The locality is given as "Env. de Mistassin" and a diagnosis on the label reads "fol. opp. lineari-lanceolatis obtusis. florib. duobus in summo caul. Stam. erectis." There are two simple fruiting plants, showing the characteristic remnants of short and thick bulb-scales along the slender creeping base. As shown by my study of the actual specimens, the erect and obtuse leaves are glabrous; and as the photograph shows, the filiform pedicels are toward twice the length of the short capsule. In other words, the type of *E. oliganthum* is the best kind of *E. palustre*, var. *oliganthum*¹, the North American plant has erroneously passed as var. *monticola* Haussk. of continental Europe.

¹ *E. PALUSTRE* L., var. *oliganthum*, comb. nov. *E. oliganthum* Michx. Fl. Bor.-Am. i. 223 (1803). *E. lineare*, var. *oliganthum* (Michx.) Trelease in Mo. Bot. Gard. 2nd Ann. Rep. 88 (1891), as to basonym only.

Epilobium lineare Muhl. Cat. 39 (1813), with the only distinctive item, "linear-leaved," a literal translation of the specific name, has been regularly treated as a *nomen nudum* (with no nomenclatural status), but validated through the good description published by Barton, Comp. Fl. Philad. i. 183 (1818), Barton giving in synonymy not only the wholly different *E. oliganthum* Michx., but the specifically identical *E. rosmarini-folium* Pursh (1814) and *E. squamatum* Nutt. (1818). There is no question about what Barton described nor, it is admitted, what Muhlenberg would have described if he had given a description. The difficulty centers on Muhlenberg's citation as identical with his otherwise undefined *E. lineare* of Michaux's species of 1803. Here are Muhlenberg's treatments, first in 1813:

Corolla

alb.	4. lineare	2	} linear-leaved	{ Penns. fl. July-Sept.
	oliganthum	Mx.		

and in the 2nd edition (1818)

alb.-ros.	4 lineare	2	} linear-leaved	{ Pens. fl. Jul-Sept. Vir.
	oliganthum,	Mx.		

Even though the plant of Pennsylvania, Virginia, etc. is not at all *E. oliganthum* Michx., Muhlenberg thought that it was and so did Barton when he gave the description of the plant of "boggy grounds and low meadows, common", in his Compendium Florae Philadelphicae. There already being a name, *E. oliganthum*, which they both considered identical with *E. lineare*,

When Trelease published *E. lineare*, var. *oliganthum* for "(*E. oliganthum*, Michx. in part), of the middle Atlantic region" he implied that Michaux had two different plants under that name. Michaux's description and his type from near Lake Mistassini afford no justification for such an assumption. Var. *oliganthum* is the plant which has erroneously passed in America as *E. palustre*, var. *monticola* Hausskn. This misinterpretation of Haussknecht's variety, found "in der montanen und alpinen Region" of Europe, arose through his statement (Mon. Gatt. Epilob. 131) under var. *monticola* that it "liegt im . . . Hb. Kunth als *E. oliganthum* von Michaux aus Nord Amerika." Americans, grasping hopefully at any straw, have accepted the name var. *monticola* for our plant. Haussknecht's description, however, called for crowded and rigid leaves greatly prolonged at tip and violet flowers 7 mm. long ("foliis m. m. conferte dispositis, crassiusculis, rigidis, . . . apice magis productis obtusis . . . ; flor. violaceis, 7 m. m. longis"). Just such a specimen, with rigid and closely overlapping appressed leaves, with prolonged tips, and with the relatively showy flower 7 mm. long, is before me, from Saxony. In var. *oliganthum* the leaves are thickish but not rigid, the subdistant pairs ascending but not imbricated and they are not conspicuously prolonged at tip. The white to pale pink flower of our plant is 4-6 (very rarely -8) mm. long.

they should have used that. The name *E. lineare* was, from the first, and emphatically as used by Muhlenberg, illegitimate, because a substitute for a validly published and legitimate earlier name.

Not so with the next publication, by Pursh, Fl. Am. Sept. i. 259, ii. 747 (1814). Pursh clearly described the plant which has commonly passed as *E. lineare* or as *E. densum* Raf. as *E. rosmarinifolium*, with the doubtful synonym *E. oliganthum* Michx. Since Pursh did not positively identify his species as that of Michaux, his name was legitimate but, unfortunately, superseded by the same name for a different species of Haenke (1788).

In the same year Rafinesque, Précis des Découv. 41 (1814) described the plant, presumably of Muhlenberg and obviously of Pursh and of Barton. The only discrepancy is his characterization of the leaves as "glabres", but, since he was contrasting his *E. leptophyllum* and its more simple state, *E. tenellum*, with the positively soft-pubescent *E. densum* Raf. l. c. 42 (1814) that was a natural enough error if he did not magnify the upper leaf-surfaces. *E. leptophyllum* of "la Pensylvanie et le Maryland, dans les bois humides" with "Tige rameuse, un peu scabre; feuilles alternes, presque sessiles, linéaires, étroites entières, glabres, uninervées aigues à base retrécie" was (with apologies for "glabres") a good description of the common almost trans-continental plant.

As to *Epilobium densum* Raf., the name was taken up in place of the illegitimate *E. lineare* on the authority of Trelease, Rev. Epil., Mo. Bot. Gard. 2d Ann. Rep. 88 (1891). At that place Trelease wrote:

"If the custom of replacing Mullenberg's names, owing to incomplete description, should ever become prevalent, the very descriptive name *E. densum*, Raf. Desv. Journ. de Bot. ii. (1814), 271, may come to replace the one here employed for this species." Fortunately the rejecting of Muhlenberg's *nomina nuda* and illegitimate names is a matter of law, rather than of "custom"; unfortunately, Trelease's identification of *E. densum* was accepted at its face value, for it is quite clear that Rafinesque was well describing the soft-pubescent *E. strictum* Muhl. (1813). Of that more later.

In summary of the first matter, it seems that for the plant which has borne the illegitimate name *Epilobium lineare* Muhl. and the quite inapplicable *E. densum* Raf. the only available names are *E. LEPTOPHYLLUM* Raf. Précis des Découv. 41 (1814) and *E. tenellum* Raf. l. c. Since the latter was evidently a mere slender and simple state of the former, I am taking up the name of the characteristically branching plant.

Species no. 1, *Epilobium strictum* Muhl. (*E. molle* Torr., not Lam.) is distinguished from all other eastern American members of the *Palustriformes* by the nearly uniform soft and almost plush-like spreading pubescence which covers the internodes, leaves, pedicels and capsules; and from *E. leptophyllum* (with linear or linear-lanceolate leaves long-attenuate) by its tendency to oblong-lanceolate, or even narrowly oblong or linear, blunt or bluntish leaves, as well as by its much larger flowers. When, therefore, Trelease, in the passage above quoted, identified with his *E. lineare* the *E. densum* Raf., he could not have studied very closely Rafinesque's description of the latter. Most unfortunately, as already noted, those of us who accepted on faith this identification and took up the name *E. densum* for *E. lineare* of authors, clearly went astray. Trelease, l. c. definitely distinguished the two species, *E. strictum* and *E. lineare*: the former "Pubescent throughout with soft spreading hairs; leaves . . . rather obtuse, with evident lateral veins", etc., his key saying "leaves . . . sessile"; the latter "Canescent . . . with incurved hairs; leaves linear-lanceolate, acute, without evident lateral veins", the key adding "petioled". That Rafinesque, after well describing *E. leptophyllum*, with 1-nerved linear acute leaves narrowed to base, gave for his *E. densum* a superior account of *E. strictum* (compare Trelease's account of the latter) is evident from his two descriptions. The first was in his Précis des Découvertes, 42 (1814), one of his four species from "la Pensylvanie et le Maryland, dans les bois humides":

138. *Epilobium densum*. Entièrement pubescente, feuilles éparses rapprochées, sessiles, linéaires-lancéolées, presque obtuses, entières, nerveuses; fleurs paniculées, pedunculées, à bractées oblongues."

Slightly later, in Desv. Journ. de Bot. vi. 271 (1814), essentially the same description was given.

If the name *Epilobium strictum* Muhl. Cat. 39 (1813) be

treated, as is done by Haussknecht, by Trelease and by Index Kewensis, as not properly applying to anything until validated through a good description in Sprengel, Syst. ii. 233 (1825), then we must take up the name *E. densum* Raf. (1814) for that very definite species. In this case, however, it seems to me that Muhlenberg barely "got through by the skin of his teeth", definitely enough so that his *E. strictum* of the Catalogus (1813) may legitimately be accepted. Whereas under his *E. lineare* he clearly stated that it was the same as an earlier described species of Michaux and gave no word which can be taken as diagnostic, in the case of *E. strictum* he gave the all-important distinctive adjective:

Corolla

rubel 3. *strictum* upright, (soft) Penns. fl. Sept.

That single word *soft* "does the trick"; it is the most striking character. I am, therefore, supporting *E. strictum* Muhl. (1813) as barely but definitely described. The name *E. molle* Torr. being a later homonym, we must drop that.

The following minor transfers in the *Palustriformes* have to be made:

EPILOBIUM LEPTOPHYLLUM Raf., forma **umbrosum** (Haussk.), comb. nov. *E. lineare*, forma *umbrosum* Haussk. Mon. Gat. Epilob. 255 (1884).

E. NESOPHILUM Fernald, var. **sabulonense** (Fernald), comb. nov. *E. molle*, var. *sabulonense* Fernald in RHODORA, xx. 31 (1918).

EPILOBIUM CILIATUM Raf.—Only three species of *Epilobium* of Haussknecht's series *Tetragonoideae* are found in the North Atlantic States: *E. coloratum* Biehler (1807); *E. adenocaulon* Haussk. (1879), which I consider a variety of *E. glandulosum* Lehm. (1830), i. e. *E. glandulosum*, var. *adenocaulon* (Haussk.) Fernald in RHODORA, xx. 35 (1918); and the little plant which was described as *E. americanum* Haussk. in Oestr. Bot. Zeitschr. xxix. 118 (1879), the plant later called *E. adenocaulon*, var. ? *perplexans* Trel. Mo. Bot. Gard., 2nd. Ann. Rep. 96 (1891) and *E. glandulosum*, var. *perplexans* (Trel.) Fernald, l. c. (1918). *E. coloratum* stands apart by its rugulose-veiny narrowly lanceolate grayish-green leaves with 35–75 or more serrulations on each margin, by the cinnamon-brown coma and the broadly

rounded summit of the essentially neckless seed. The other two have more ovate, elliptic or ovate-lanceolate non-rugose and bright green leaves with fewer teeth, the coma whitish and the seed with a definite short neck. *E. glandulosum* (typical) is boreal, in the East chiefly on the coasts of Labrador, Newfoundland and Quebec, while var. *adenocaulon* is wide-spread as far south as Delaware, Pennsylvania, West Virginia, etc., passing too freely into the narrower-leaved var. *occidentale* (Trel.) Fern. (*E. occidentale* (Trel.) Rydb.).

But the little plant described by Haussknecht as *Epilobium americanum*, by Trelease as *E. adenocaulon*, var. ? *perplexans*, by me as *E. glandulosum*, var. *perplexans*, and by Trelease ex Coult. & Nels. Man. Bot. Centr. Rocky Mts. 337 (1909) as *E. perplexans*, and extending south to Nova Scotia, New England, Pennsylvania, southern Ontario, Wisconsin, New Mexico, etc., seems to have some very real characters, as characters go in *Epilobium*. *E. glandulosum* (including *E. adenocaulon*, *E. occidentale*, and several so-called species farther north and west) is commonly an erect, stoutish plant up to 1 m. high, with all but the rameal and sometimes the uppermost leaves opposite, firm, deep green, with lateral nerves prominent beneath, sessile or very short-petioled, lanceolate, oblong or ovate, broadly rounded to cordate at base; the flowers up to 9 mm. long, with closely grayish-pilose calyx and lilac or purple petals; the erect fruiting pedicels 0.2–1.5 cm. long; the fulvous seed with a rather persistent coma. *E. americanum*, on the other hand, is a weak, slender and chiefly simple-stemmed plant mostly 0.3–2 (rarely –4) dm. high or long; leaves pale green, thin or flaccid, oval, elliptic or narrowly ovate, with very delicate or weak lateral nerves, the upper and often all scattered and alternate, only 1–5 cm. long, tapering to slender petioles 2–10 mm. long; flowers only 3–6 mm. high, with sparsely pilose calyx and with white or pale petals; fruiting pedicels arching to ascending, 0.5–3 cm. long; seed fulvous to fuscous, with more prominent rows of deltoid subacute papillae than in the rounded-papillate seed of the former, the coma caducous (absent from fully ripe seed).

There seems good reason to consider the little *Epilobium americanum* a distinct species. Many field-botanists have protested its merging with the others. But, apparently, the name

E. americanum is antedated by *E. ciliatum* Rafinesque in Med. Repos. N. Y. hex. II. v. 361 (1808). Rafinesque's diagnosis was brief but it emphasized the simple stem, "ovated" leaf and its petiole:

27. *Epilobium ciliatum*, ciliated epiloby; stem simple, leaves petiolated, ovated, ciliated, acute; flowers axillary, longer than the leaves. It grows in North Pennsylvania.

This diagnosis has to be taken into account and, as stated, it seems to have been based on the little plant described by Haussknecht as *E. americanum*: "E. herbaceum pumilum
Caule tenero dodrantali *Foliis* parvis ovato-lanceolatis, 2-3 c. m. longis, pallide viridibus, flaccidis, subintegerrimis v. denticulis callosis minimis valde remotis , in petiolum angustatis, superioribus alternis *Calyc.* laciniis glabrescentibus; pedicellis $\frac{1}{2}$ -1 cm. longis."

Rafinesque was not famed for extreme carefulness and Elias Durand, who had many of Rafinesque's specimens, which he eventually took back to Paris, where they are now preserved, was notoriously careless in confusing specimens and labels. Every one who has to deal with plants received from Durand has learned to be cautious, lest the wrong label may be attached. In his *Précis des Découvertes*, 41 (1814) Rafinesque described his *Epilobium tenellum* with "feuilles opposées, glabres, sessiles, linéaires-étroites, entières, aiguës, uninervées"; this, as noted on p. 381, is obviously the slender and subsimple state of his *E. leptophyllum*. It certainly had nothing to do with his earlier published *E. ciliatum*, with "leaves petiolated, ovated". Remembering the ease with which labels become transferred in handling loose specimens and in mounting, it is significant that, after his description of *E. americanum* in his *Monographie der Gattung Epilobium*, 260 (1884), Haussknecht said "Im Hb. mus. Par. liegen kleine, aus Samen entstandene Exemplare dieser Art, welche bezeichnet sind 'E. tenellum Rafin. Mts. Catshill, Et. Un. leg. Rafinesque', dessen Beschreibung jedoch durchaus nicht damit übereinstimmt."

Similarly Trelease, l. c. 94, said under *Epilobium americanum*: "According to Haussknecht, small plants of *Americanum* occur in the herbarium of the Museum at Paris. . . . Such speci-

mens seem to come very near what I regard as a very dwarf . . . form of *adenocaulon*, . . . which may be the *E. ciliatum* of Rafinesque. . . . As yet, however, there is too much uncertainty about the matter to warrant the application of the name *ciliatum* to either plant, unless for this dwarf form (Plate 22) [small *E. adenocaulon*] either as a variety under *adenocaulon* or as a valid species immediately preceding it." In the Gray Herbarium, however, Trelease annotated as presumably *E. ciliatum* (cliffs of Saguenay River, Aug. 13, 1879, *Pringle*; Rocky Mts., *Bourgeau*, 1858) characteristic plants of his *E. adenocaulon*, var. ? *perplexans*. The latter name was well chosen. Since, however, we can scarcely reject the name *E. ciliatum* Raf. for a plant with simple stem and leaves "petiolated, ovated", and since both Haussknecht and Trelease have felt that he had *E. americanum*, I am following this interpretation. Otherwise the only plant of "North Pennsylvania" with "ovated" leaves would be *E. adenocaulon*, which is a wide-ranging variety of *E. glandulosum* Lehm. (1830). To take up *E. ciliatum* (1808) for one of the varieties of *E. glandulosum* (1830), which, as interpreted by Munz, M. E. Peck or myself, includes as varieties not only *E. adenocaulon* (1879) but *E. exaltatum* Drew (1889), *E. occidentale* (Trel.) Rydb. (1900) and *E. cinerascens* Piper (1918) and most plants erroneously identified as *E. boreale* Haussk. (1884), would create nomenclatural havoc. It is better, in the absence of an actual type, to let the earliest name, *E. ciliatum*, apply to the less variable species, to which its brief diagnosis well applies.

AN ALOPECURUS NEW TO NORTH AMERICA.—On the 21st of July, 1943, while travelling through the Codroy Valley, in Southwestern Newfoundland, I plucked a couple of specimens of what I thought to be *Alopecurus pratensis* growing in an old meadow at Upper Ferry, to demonstrate to a number of farmers how to distinguish between meadow foxtail and timothy. Upon examination, however, I noted that the specimens I held in my hand differed from the typical *A. pratensis* which ranges widely throughout Eastern Newfoundland, insomuch as the awns scarcely extended beyond the glumes. Fortunately I pulled enough of one of the plants to show a bit of stolon. This charac-